CLAIMS

1. An image playback apparatus that plays back moving picture data composed of a series of groups of picture data consisting of a plurality of encoded picture data, the image playback apparatus comprising:

buffering means for buffering the moving picture data;

decoding means for reading out and decoding the moving picture data buffered by the buffering means;

outputting means for outputting pictures decoded by the decoding means to a subsequent stage; and

controlling means for

controlling the buffering means to buffer, concerning a group of picture data that is played back last during a playback operation, at least picture data located at the end in a playback order, and to buffer, concerning groups of picture data except for the group of picture data that is played back last during the playback operation, picture data encoded by a predetermined encoding method,

controlling the decoding means to decode, concerning the group of picture data that is played back last during the playback operation, at least the picture data located at the end in the playback order, and to decode, concerning the groups of picture data except for the group of picture data that is played back last during the playback operation, the picture data encoded by the predetermined

encoding method, and

controlling the outputting means to output, concerning the group of picture data that is played back last during the playback operation, at least the picture data located at the end in the playback order, and to output, concerning the groups of picture data except for the group of picture data that is played back last during the playback operation, pictures corresponding to the picture data encoded by the predetermined encoding method.

2. An image playback method for an image playback apparatus having

buffering means for buffering moving picture data composed of a series of groups of picture data consisting of a plurality of encoded picture data,

decoding means for reading out and decoding the moving picture data buffered by the buffering means, and

outputting means for outputting pictures decoded by the decoding means to a subsequent stage, the image playback method comprising the steps of:

controlling the buffering means to buffer, concerning a group of picture data that is played back last during a playback operation, at least picture data located at the end in a playback order, and to buffer, concerning groups of picture data except for the group of picture data

that is played back last during the playback operation, picture data encoded by a predetermined encoding method;

controlling the decoding means to decode, concerning the group of picture data that is played back last during the playback operation, at least the picture data located at the end in the playback order, and to decode, concerning the groups of picture data except for the group of picture data that is played back last during the playback operation, the picture data encoded by the predetermined encoding method; and

controlling the outputting means to output, concerning the group of picture data that is played back last during the playback operation, at least the picture data located at the end in the playback order, and to output, concerning the groups of picture data except for the group of picture data that is played back last during the playback operation, pictures corresponding to the picture data encoded by the predetermined encoding method.

3. A program for controlling an image playback apparatus having

buffering means for buffering moving picture data composed of a series of groups of picture data consisting of a plurality of encoded picture data,

decoding means for reading out and decoding the moving

picture data buffered by the buffering means, and

outputting means for outputting pictures decoded by the decoding means to a subsequent stage, the program allowing a computer to execute a process comprising the steps of:

controlling the buffering means to buffer, concerning a group of picture data that is played back last during a playback operation, at least picture data located at the end in a playback order, and to buffer, concerning groups of picture data except for the group of picture data that is played back last during the playback operation, picture data encoded by a predetermined encoding method;

controlling the decoding means to decode, concerning the group of picture data that is played back last during the playback operation, at least the picture data located at the end in the playback order, and to decode, concerning the groups of picture data except for the group of picture data that is played back last during the playback operation, the picture data encoded by the predetermined encoding method; and

controlling the outputting means to output, concerning the group of picture data that is played back last during the playback operation, at least the picture data located at the end in the playback order, and to output, concerning the groups of picture data except for the group

of picture data that is played back last during the playback operation, pictures corresponding to the picture data encoded by the predetermined encoding method.

4. An image playback apparatus that plays back moving picture data composed of a series of groups of picture data consisting of a plurality of picture data, each of which is classified into one of an I(Intra-coded)-picture, a P(Predictive-coded)-picture, and a B(Bidirectionally Predictive-coded)-picture, the image playback apparatus comprising:

buffering means for buffering the moving picture data;

decoding means for reading out and decoding the moving picture data buffered by the buffering means;

outputting means for outputting pictures decoded by the decoding means to a subsequent stage; and

controlling means for,

when special playback, different from normal playback, in a forward direction is instructed,

controlling the buffering means to buffer, concerning a last group of picture data in a normal playback order, all the picture data, and to buffer, concerning groups of picture data except for the last group of picture data, part of the picture data including at least picture data classified into the I-pictures,

controlling the decoding means to decode, concerning the last group of picture data, the picture data classified into the I-pictures or the P-pictures, and to decode, concerning the groups of picture data except for the last group of picture data, at least the picture data classified into the I-pictures, and

controlling the outputting means to output, concerning the last group of picture data, at least a last picture of moving pictures, and to output, concerning the groups of picture data except for the last group of picture data, at least pictures corresponding to the I-pictures,

whereas when the special playback, different from the normal playback, in a reverse direction is instructed,

controlling the buffering means to buffer, concerning a first group of picture data in the normal playback order, all the picture data, and to buffer, concerning groups of picture data except for the first group of picture data, part of the picture data including at least the picture data classified into the I-pictures

controlling the decoding means to decode, concerning the first group of picture data, at least picture data corresponding to a first picture of the moving pictures, and to decode, concerning the groups of picture data except for the first group of picture data, at least the picture data classified into the I-pictures, and

controlling the outputting means to output, concerning the first group of picture data, at least the first picture of moving pictures, and to output, concerning the groups of picture data except for the first group of picture data, at least the pictures corresponding to the I pictures.

5. The image playback apparatus according to Claim 4, wherein

the controlling means specifies picture types to be decoded for each group of picture data, and notifies the decoding means of the picture types to be decoded in advance, and wherein

the decoding means reads out and decodes the moving picture data buffered by the buffering means according to the notification from the controlling means.

6. An image playback method for an image playback apparatus having

buffering means for buffering moving picture data composed of a series of groups of picture data consisting of a plurality of picture data, each of which is classified into one of an I-picture, a P-picture, and a B-picture,

decoding means for reading out and decoding the moving picture data buffered by the buffering means, and

outputting means for outputting pictures decoded by the decoding means to a subsequent stage, the image playback method comprising the steps of:

when special playback, different from normal playback, in a forward direction is instructed,

controlling the buffering means to buffer, concerning a last group of picture data in a normal playback order, all the picture data, and to buffer, concerning groups of picture data except for the last group of picture data, part of the picture data including at least picture data classified into the I-pictures;

controlling the decoding means to decode, concerning the last group of picture data, the picture data classified into the I-pictures or the P-pictures, and to decode, concerning the groups of picture data except for the last group of picture data, at least the picture data classified into the I-pictures; and

controlling the outputting means to output, concerning the last group of picture data, at least a last picture of the moving pictures, and to output, concerning the groups of picture data except for the last group of picture data, at least pictures corresponding to the I-pictures,

whereas when the special playback, different from the normal playback, in a reverse direction is instructed,

controlling the buffering means to buffer, concerning a first group of picture data in the normal playback order, all the picture data, and to buffer, concerning groups of picture data except for the first group of picture data, part of the picture data including at least the picture data classified into the I-pictures;

controlling the decoding means to decode, concerning the first group of picture data, at least picture data corresponding to a first picture of the moving pictures, and to decode, concerning the groups of picture data except for the first group of picture data, at least the picture data classified into the I-pictures; and

controlling the outputting means to output, concerning the first group of picture data, at least the first picture of the moving pictures, and to output, concerning the groups of picture data except for the first groups of picture data, at least pictures corresponding to the I-pictures.

7. A program for controlling an image playback apparatus having

buffering means for buffering moving picture data composed of a series of groups of picture data consisting of a plurality of picture data, each of which is classified into one of an I-picture, a P-picture, and a B-picture,

decoding means for reading out and decoding the moving picture data buffered by the buffering means, and

outputting means for outputting pictures decoded by the decoding means to a subsequent stage, the program allowing a computer to execute a process comprising the steps of:

when special playback, different from normal playback, in a forward direction is instructed,

controlling the buffering means to buffer, concerning a last group of picture data in a normal playback order, all the picture data, and to buffer, concerning groups of picture data except for the last group of picture data, part of the picture data including at least picture data classified into the I-pictures;

controlling the decoding means to decode, concerning the last group of picture data, the picture data classified into the I-pictures or the P-pictures, and to decode, concerning the groups of picture data except for the last group of picture data, at least the picture data classified into the I-pictures; and

controlling the outputting means to output, concerning the last group of the picture data, at least a last picture of the moving pictures, and to output, concerning the groups of picture data except for the last group of picture data, at least pictures corresponding to the I-pictures,

whereas when the special playback, different from the normal playback, in a reverse direction is instructed,

controlling the buffering means to buffer, concerning a first group of picture data in the normal playback order, all the picture data, and to buffer, concerning groups of picture data except for the first group of picture data, part of the picture data including at least the picture data classified into the I-pictures;

controlling the decoding means to decode, concerning the first group of picture data, at least picture data corresponding to a first picture of the moving pictures, and to decode, concerning the groups of picture data except for the first group of picture data, at least the picture data classified into the I-pictures; and

controlling the outputting means to output, concerning the first group of picture data, at least the first picture of the moving pictures, and to output, concerning the groups of picture data except for the first group of picture data, at least the pictures corresponding to the I-pictures.